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1 J. Stephen Peek, Esq.
Nevada Bar No. 1758
2 Brad M. Johnston, Esq.
Nevada Bar No. 8515
3 Hale Lane Peek Dennison
and Howard
4 5441 Kietzke Lane
Second Floor
5 Reno, Nevada 89511
Telephone: (775) 327-3000
6 Facsimile: (775) 786-6179

CLERK, U.S. DISTRICT COURT
DISTRICT OF NEVADA

7 Charles K. Verhoeven, Esq.
Jennifer A. Kash, Esq.
8 W. Paul Schuck, Esq.
Quinn Emanuel Urquhart
9 Oliver & Hedges, LLP
50 California Street, 22d Floor
10 San Francisco, California 94111
Telephone: (415) 875-6600
11 Facsimile: (415) 875-6700

12 Attorneys for Defendants MP Games LLC,
Robert Mouchou, Alliance Gaming Corp.
13 and Bally Gaming, Inc.

UNITED STATES DISTRICT COURT
DISTRICT OF NEVADA

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15
16 SHUFFLE MASTER, INC.,

17 Plaintiff,

18 v.

19 MP GAMES LLC D/B/A MINDPLAY
GAMES; ROBERT MOUCHOU;
20 ALLIANCE GAMING CORP. D/B/A
BALLY GAMING AND SYSTEMS;
21 BALLY GAMING, INC.,

22 Defendants

23
24 AND RELATED COUNTER-CLAIMS

) CASE NO. CV-N-04-0407-HDM-(RAM)

)
) DECLARATION OF DR. ROBERT C.
) HANNUM IN SUPPORT OF
) DEFENDANTS' JOINT REPLY CLAIM
) CONSTRUCTION BRIEF

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1 I, Robert Hannum, declare as follows:

2 1. I submit the following declaration on behalf of Defendants MP Games LLC,
3 Robert Mouchou, Alliance Gaming Corp. and Bally Gaming, Inc. (collectively, "Defendants") in
4 support of Defendants' Joint Reply Claim Construction Brief.

5 2. I am a member of the faculty of the University of Denver, where I currently hold
6 the rank of Professor of Statistics. At the University of Denver, my primary areas of interest
7 include mathematics of gambling and commercial gaming, applications of mathematics in
8 gaming law and regulation, casino gaming operations and gaming management and probability
9 theory and statistical applications.

10 3. I hold a Ph.D. in Statistics from Florida State University (received in 1979), a
11 Master of Science in Statistics, also from Florida State University (1976), and a Bachelor of
12 Science with Highest Honors in Mathematics from the University of Dayton (1974).

13 4. I joined the faculty at the University of Denver in 1979 as an Assistant Professor,
14 following two years as a Visiting Assistant Professor at Bucknell University in Lewisburg,
15 Pennsylvania. I also served as a Visiting Assistant Professor at Temple University from 1985 to
16 1986. I returned to the University of Denver in 1986, and held the position of Associate
17 Professor until promoted to Professor of Statistics in 2004. I served as Chair of the University of
18 Denver's Department of Statistics & Operations Research from 1987 to 1991 and Chair of the
19 renamed Department of Statistics & Operations Technology from 1992 to 1996. I also served as
20 Acting Chair of the department in 2002. I have received numerous merit awards for teaching, as
21 well as for research and publication.

22 5. I have received research grants in the following areas, among others: Advantage
23 Play and Commercial Casinos, Statistical Comparison of Casino Comp Policies for Premium
24 Players, Statistical Issues in Gaming Regulation, Mathematics and International Economic
25 Impact of Gaming, and International Casino Gaming: Operations, Policies, and Impacts.

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1 6. I have published numerous papers in the area of statistics and gaming, and am co-
2 author of *Practical Casino Math*, published by the Institute for the Study of Gambling and
3 Commercial Gaming, University of Nevada, in Reno, Nevada (2001).¹

4 7. I am an invited affiliate member of the International Masters of Gaming Law. I
5 am also a member of the American Statistical Association, the American Mathematical Society,
6 and the Decision Sciences Institute. I am also the sole expert in casino mathematics on the
7 gaming expert faculty list at the University of Nevada Las Vegas Gaming Studies Research
8 Center.

9 8. I have been retained by Defendants to provide opinions on the meaning of certain
10 claims in U.S. Patent No. 6,530,837 ("the '837 Patent").

11 9. In connection with the preparation of this declaration, I have thoroughly reviewed
12 the '837 Patent and its prosecution history.

13 10. As a technical expert, I have been instructed by the attorneys for Defendants on
14 the process of patent claim construction. Specifically, my understanding is that a patent is to be
15 construed or interpreted as it would have been by a person having ordinary skill in the art at the
16 time that the patent was filed. My opinions are based on that understanding.

17 11. "[S]tatistically predictable number of successful outcomes" has a clear meaning in
18 the '837 Patent to one of ordinary skill in the art. In the game of blackjack, for example, one
19 skilled in the relevant art would understand this phrase as used in the '837 Patent to mean an
20 anticipated (or projected) number of successful outcomes for a player, an average value
21 statistically generated based on knowledge of the rules of the game, the cards in play, and some
22 predefined strategy, such as "basic strategy." This anticipated number of outcomes is also
23 sometimes referred to in the industry as the "expected value" or "expectation."

24 12. "Basic strategy" is understood in the gaming industry as the strategy which
25 maximizes the player's return, given knowledge of the cards in the player's hand and the card
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28 ¹ A new edition, *Practical Casino Math*, 2d Edition (2005), has just been released.

1 showing in the dealer's hand (the dealer's "up" card) -- this strategy does not consider other cards
2 from the deck that were played previously.

3 13. In blackjack, based upon the game's rules, one skilled in the art could determine
4 what a player's optimal (or "correct") moves would be in any given situation. This strategy
5 would not guarantee a win, but would optimize the player's expected return. Knowing the
6 strategy employed, combined with knowledge of the game, a person of ordinary skill in the art
7 can calculate a number of expected successful outcomes for a player employing that strategy.
8 This is what claims 1, 6 and 7 of the '837 Patent refer to as the "statistically predictable number
9 of successful outcomes."

10 14. One skilled in the art of gaming statistics would understand that the phrase
11 "identifying a statistical aberration in the number of successful outcomes", as used in the '837
12 Patent, refers to comparing the statistically predicted (or "expected") number of successful
13 outcomes to the actual number of successful outcomes to identify any statistically meaningful
14 difference between the actual and expected outcomes. This comparison can be useful for
15 determining whether a player has deviated from a "normal" strategy and is employing a "suspect"
16 strategy (such as counting cards). An actual result which varied from the expected result in a
17 statistically significant way would represent a "statistical aberration."

18 15. Plaintiff's brief discusses the probability of a number of "successful outcomes" in
19 a game falling within a range known as the "confidence interval." One of ordinary skill in the art
20 would understand that, in the '837 Patent, the phrase "statistical aberration" reflects an outcome
21 that deviates from the expected result by a statistically meaningful amount, that is, it falls outside
22 of the "confidence interval" which a casino employs for a given game with given conditions.

23 16. The '837 Patent claims a method that provides one skilled in the art enough
24 latitude to adjust the confidence level used -- *i.e.* the size of difference necessary to constitute a
25 "statistical aberration" -- in order to meet the needs of a particular casino wishing to detect
26 suspect player activity. This is an inherent benefit of the disclosed method.

27 17. Some casinos might want to utilize the traditional confidence level of 95 percent
28 to identify possible card counters. However, a casino that wants to minimize surveillance costs

1 and the risk of harassing players might want to identify a smaller number of potential card
2 counters. As a result, that casino would likely require a higher confidence level to identify a
3 statistical aberration (*i.e.* reduce the number of potential card counters identified). That the
4 claims permit this variation, however, does not render "statistical aberration" as used in the '837
5 Patent indefinite to one of ordinary skill in the art.

6 18. One skilled in the art would understand that "statistically meaningful amount" as
7 that term is used in the '837 Patent, refers to statistical significance.

8 19. A player's chances of winning in a casino game and the rate at which he wins or
9 loses money depend on the rules in effect for the game, and for some games, the player's level of
10 skill.

11 20. One skilled in the art would understand that a player able to identify favorable
12 playing conditions would be expected to win more money than one not employing a strategy
13 accounting for such conditions. For example, in blackjack, a player who is able to track the cards
14 played and determine that there are a high number of face cards remaining in the deck can
15 recognize that this is a favorable betting environment and adjust his bets upwards. This strategy
16 is commonly referred to as "card counting."

17 21. One skilled in the art would understand the phrase "statistically predictable
18 amount of winnings for the at least one game," as used in the '837 Patent, to mean the amount of
19 statistically anticipated or projected winnings for a player (commonly referred to as "expected
20 value" or "expectation"), an average value statistically generated based on knowledge of rules of
21 a game, and a predefined wagering strategy, such as basic strategy in blackjack.

22 22. If the difference between the amount actually won by the player and the amount
23 expected for a player employing basic strategy is statistically significant --falling outside the
24 confidence interval set by the casino -- this would be a "statistical aberration in the amount of
25 winnings."

26 23. In claim 17 of the '837 Patent, "each the determined outcomes that are successful
27 for the player" would be understood by one of skill in the art to be a typographical error that
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1 means "each of the determined outcomes that are successful for the player." As all parties agree,
2 a "successful outcome" in the '837 Patent is a winning bet.

3 24. In claim 18 of the '837 Patent, "statistically probable amount win amount" would
4 be understood by one of skill in the art to be a typographical error that means the "statistically
5 probable win amount."

6 25. Defendants' proposed corrections to typographical errors "each the determined
7 outcomes that are successful for the player" and "statistically probable amount win amount"
8 reflect the only way one skilled in the art could reasonably read the patent language in question.

9 I declare under penalty of perjury under the laws of the United States of America that the
10 foregoing is true and correct.

11 Executed on this 8th day of April, 2005 at Littleton, Colorado.

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14 Dr. Robert C. Hannum
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